REMARKS

Claims 1-28 were previously pending in this application. In this response, claims 1, 10, and 19 are amended to clarify the claimed subject matter and not for any reason of patentability. No claims are canceled. Claims 1-28 remain pending.

Claim Rejections

Claims 1 – 28 stand rejected under 35 USC §102(e) as being anticipated by U.S. Patent 6,909,700 to Benmohamed et al. (hereinafter "Benmohamed"). The Applicant respectfully traverses the rejection as follows.

In general, Benmohamad is directed to "methods and apparatus for designing packet-based networks, and more particularly, for designing IP (Internet Protocol) networks with performance guarantees" (*see* Benmohamed, col. 1, lines 19-22). Benmohamed does not recite methods and apparatus for dynamically reorganizing nodes in a dynamically reconfigurable network topology; in contrast, Benmohamed discloses a system for designing the physical layout of a static physical network topology. For example, the network topology input to the methods and apparatus of Benmohamed "is provided in the form of a graph G=(V,E) where V is the set of nodes corresponding to the points of presence (POPs where routers are located) and E is the set of links which can be used to provide direct connectivity between the POPs" (*see* Benmohamed, col. 4, lines 25-29).

In contrast, independent **Claims 1, 10, and 19** are generally directed, *inter alia,* to a method, computer program product, and system for an overlay network which may

Type of Response: Final Office Action of 10/10/2006
Application Number: 10/698,846
Attorney Docket Number: 304871.02
Filing Date: 10/30/2003

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be dynamically reorganized based on a number of factors.   An overlay network may be comprised of logical network nodes communicating with each other over <u>physical network links</u>. The logical nodes are <u>fully functioning network nodes</u> and are connected by fully functioning <u>physical network links</u>. In contrast, the nodes and links of Benmohamed are <u>non-functioning portions of information representing a node or a link between nodes</u> and as such are not functional in any way.

<u>Rejections under 35 USC §102(e)</u>

The Office Action rejected Independent **Claims** 1, 10, and 19, under 35 U.S.C. § 102(e) as being anticipated by Benmohamed. The Applicant respectfully traverses this rejection, and requests that this rejection be reconsidered and withdrawn. More particularly, the Applicant submits that the rejection does not fulfill all of the requirements of MPEP §2131, which states, in part:

> "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference," Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

The rejection to **Claims** 1, 10, and 19, asserts "determining a first cost associated with a logical network link between an active node" is disclosed at column 3, lines 39-40 of Benmohamed.

Column 3, lines 39-40 of Benmohamed read as follows:

> ...unless otherwise noted, the terms "node", "switch," and "router" as used herein are interchangeable.

The Applicant respectfully requests that the Examiner point out with specificity where the elements of a "first cost", a "logical network link", and an "active node" may be found at the cited section of Benmohamed. Furthermore, no determination of any kind, let alone a determination of a first cost associated with a logical network link between an active node, can be found at the cited section of Benmohamed. If the Examiner believes the cited section of Benmohamed represents an operation of any kind, the Applicant respectfully requests the Examiner point out with specificity any operation defined by the sentence "...unless otherwise noted, the terms 'node', 'switch,' and 'router' as used herein are interchangeable".

The rejection continues "[...] and a first neighboring node of the active node within an overlay network; determining a second cost associated with a proposed logical network link between the first neighboring node and second neighboring node of the active node within the overlay network; and reorganizing the overlay network with a reorganization probability based on the first and second costs and the size of a neighbor list of the active node, the size of the neighbor list of the first neighboring node and the size of the neighbor list of the second neighboring node" is disclosed at column 5, lines 12–32 of Benmohamed.

Column 5, lines 12–32 of Benmohamed read as follows:

> Referring to FIG. 2, one embodiment of a general design algorithm **200** of the system proceeds as follows. First, the traffic mix F_l at each link is computed (by routing processor 12) based on an initial network topology G_s (from optimization processor 18) which is a subgraph of G, the routing algorithm R, the link metric vector $\vec{l}$, and the set of IP demands F (step 202). Second, the capacity of

each link required to satisfy the bandwidth demands in F_I
is computed (by link capacity requirements processors 14
and 16) based on the type(s) of routers in the network, the
different assumptions on congestion scenario, and in
some cases the end–to–end delays of the TCP demands
(step 204). Third, the design system determines whether
the final network design (by optimization processor 18) is
obtained (step 206). If not, in step 208, the network
topology is perturbed (by optimization processor 18) and
the new network cost is evaluated in accordance with steps
202 and 204. This design iteration is then repeated until
the final network design is obtained. The results of the
final design are output (step 210), e.g., in the form of
information displayed to the user of the design system,
including: (1) the vector $\vec{C}$; (2) the route of each traffic
flow f_i; and (3) the corresponding network cost.

Claim 1 has been amended as follows:

1.   A method comprising:
        determining a first cost associated with a logical
network link between an active node and a first
neighboring node of the active node within an overlay
network, the active node and the first neighboring node
communicating through one or more physical network
links;
        determining a second cost associated with a
proposed logical network link between the first
neighboring node and a second neighboring node of the
active node within the overlay network, the first
neighboring node and the second neighboring node
communicating through one or more physical network
links; and
        reorganizing the overlay network to replace the
logical network link with the proposed logical network link
in the overlay network with a reorganization probability
based on the first cost and second cost and the size of a
neighbor list of the active node, the size of a neighbor list

of the first neighboring node, and the size of a neighbor
list of the second neighboring node.

The cited section of Benmohamed discloses an initial network topology G_s which is a subgraph of G. Benmohamed discloses G at column 4, lines 24 as "an initial backbone network topology". Benmohamed further discloses G at column 4, lines 25–29 as "the form of a graph $G=(V,E)$ where V is the set of nodes corresponding to the points of presence (POPs where routers are located) and E is the set of links which can be used to provide direct connectivity between the POPs". A network graph or subgraph is known to those skilled in the art to be a list of information related to nodes and a list of connections or links between the nodes. A network graph or subgraph does not function as a physical network and does not include any physical network connections.

In contrast, Claim 1 has been amended to clarify that the active node and the first neighboring node communicate through one or more physical network connections. Claim 1 has further been amended to clarify that the first neighboring node and the second neighboring node also communicate through one or more physical network connections. The cited section of Benmohamed fails to disclose an active node, a first neighboring node, or a second neighboring node, let alone that these communicate through one or more physical network connections. In contrast, the cited section of Benmohamed discloses that the graph G only includes information related to nodes. Information is not capable of communicating through one or more network connections. Therefore, the nodes disclosed at the cited section of Benmohamed may not participate in an overlay network as is presently claimed.

As the cited section of Behmohamed fails to disclose an active node, a first neighboring node, a second neighboring node, and an overlay network, it follows that the cited section of Benmohamed cannot disclose determining any costs associated with logical links between them. In order to determine any type of cost related to a logical network link, the cited section of Benmohamed must disclose functioning physical network connections and a functioning overlay network communicating using the physical network connections. However, as the cited section of Benmohamed discloses neither, there can be no determination of any type of cost of a logical network link. The same logic applies to a second cost associated with a proposed logical network link between the first neighboring node and a second neighboring node of the active node.

Furthermore, the Applicant respectfully reiterates that the cited section of Benmohamed discloses a monetary cost. For example, Benmohamed discloses "in one embodiment, an iterative augmentation methodology is provided which attempts to reduce network costs by packing small demands on the spare capacity of some existing links rather than introducing additional poorly utilized links into the network topology" (see Benmohamed, col. 2 lines 26–31).

The rejection goes on to assert that figure 7, 702 discloses "size of lists are taken into account for nodes on network, which includes an active, first and second neighboring node". Step 702 of figure 7 discloses "identify candidate links that are lightly loaded with respect to traffic demand based on tunable utilization threshold, and put all candidate links onto a candidate list." The cited section of Benmohamed does not disclose the size of the candidate list and further discloses links, not nodes, let alone an active, first and second neighboring node. Even if the cited section of Benmohamed were given its

broadest possible interpretation, a link is not equivalent to a node. In particular, the cited section fails to disclose "size of lists" and that the lists "includes an active, first and second neighboring node" as the rejection asserts.

Response To Arguments

The Applicant respectfully traverses the response to arguments as follows. The response to the Applicant's arguments of 8/31/2006 asserts that the applicant's claims are drawn to a method, computer program and system, and not a physical network. The applicant has amended **Claims 1, 10, and 19** to clarify that the active node and the first neighboring node communicate through a physical network connection and that the first neighboring node and the second neighboring node communicate through a physical network.

Therefore, the Applicant respectfully disagrees with the substance of the response to arguments for at least the reasons set forth above and requests that the response to arguments be reconsidered and removed.

Claims 10 and 19 were rejected for similar reasons, and **Claims 10 and 19** are allowable for at least the reasons set forth above with respect to **Claim 1**. Each of **Claims 2–9** depend from **Claim 1** and are patentably distinct over Benmohamed for at least the reasons set forth with respect to **Claim 1**. Each of **Claims 11–18** depend from **Claim 10** and each of **Claims 20–28** depend from **Claim 19** and are patentably distinct over Benmohamed for the reasons set forth above.

CONCLUSION

Accordingly, in view of the above amendment and remarks it is submitted that the claims are patentably distinct over the prior art and that all the rejections to the claims have been overcome. Reconsideration and reexamination of the above Application is requested. Based on the foregoing, Applicants respectfully requests that the pending claims be allowed, and that a timely Notice of Allowance be issued in this case. If the Examiner believes, after this amendment, that the application is not in condition for allowance, the Examiner is requested to call the Applicant's attorney at the telephone number listed below.

If this Response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is a fee occasioned by this Response, including an extension fee that is not covered by an enclosed check please charge any deficiency to Deposit Account No. 50–0463.

Respectfully submitted,

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January 10, 2007
Date

Signature

Kate Marochkina
Type or Print Name

Type of Response: Final Office Action of 10/10/2006
Application Number: 10/698,846
Attorney Docket Number: 304871.02
Filing Date: 10/30/2003